

EuroHPC
Joint Undertaking

European High Performance Computing Joint Undertaking

EVALUATION GUIDE

TO

The Calls for Expression of Interest for the selection of
Hosting Entities for Precursors to Exascale and for Petascale Supercomputers

Call References:

- (1) EUROHPC-2019-CEI-PE-01
- (2) EUROHPC-2019-CEI-PT-01

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1. INTRODUCTION

The European High Performance Computing Joint Undertaking (*EuroHPC JU*) was established by [Council Regulation \(EU\) 2018/1488 of 28 September 2018 \(the Regulation\)](#). One of the main objectives of the EuroHPC JU is to equip the Union with (at least 2) pre-exascale supercomputers and (at least 2) petascale supercomputers by 2020.

In accordance with Article 8 of the Regulation, the EuroHPC JU has launched two calls for expression of interest (*the Calls*): one for the selection of the hosting entities for precursors to pre-exascale supercomputers ([ref nr. EUROHPC-2019-CEI-PE-01](#)) and another one for the selection of hosting entities for petascale supercomputers ([Ref. Nr EUROHPC-2019-CEI-PT-01](#)).

In accordance with the Regulation, the EuroHPC JU will evaluate the applications received in the Calls (*the Applications*) with the support of independent external experts.

The purpose of this document is to guide the external experts (*the Evaluators*) who will participate in the evaluation of the Applications on how to conduct these evaluations, so that they are carried out in a coherent and consistent way.

Evaluators must familiarise themselves with the documents related to the two calls. The information below refers to certain key points but does not substitute a thorough reading of the relevant call texts, their annexes and the FAQs published for these calls.

It is recalled that the Review panel (for the purpose of this document “the panel”) has to base its decisions on the individual evaluations of the evaluators and therefore needs to ensure compliance with the criteria defined in the call and that these are commonly understood and applied by all evaluators, whether they be Members of the panel, internal to the EuroHPC Joint Undertaking (internal experts) or external (external experts).

2. OVERVIEW OF THE EVALUATION PROCEDURE

After the call deadline, the opening of the Applications will be done by an opening committee in Luxembourg. For the applications considered admissible, the EuroHPC JU will assess the eligibility and exclusion criteria. Only eligible applications will be evaluated according to the following process:

- **Individual evaluations:** In the first step, the evaluators that sit on the panel shall carry out individually the evaluation of expressions of interest on the basis of the evaluation criteria described in section 9. They give a score for each criterion, with explanatory comments. These individual reports form the basis of the further evaluation.
- **Consensus meetings:** After carrying out their individual assessment, all the evaluators that evaluated the application shall convene in a consensus meeting, to agree on a common position, including comments and scores and prepare a consensus

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report. The consensus meetings shall be moderated by a Senior Officer of the EuroHPC JU or a Commission official¹ who shall seek consensus, impartially, and ensure that all applications are evaluated fairly, in line with the relevant evaluation criteria.

- **Panel review:** The review panel shall be chaired by the Executive Director of the EuroHPC JU. The panel will review the scores and comments for all applications to check for consistency across the evaluations. If necessary, it will propose a new set of marks or revise comments, and resolve cases where evaluators were unable to agree. The panel will prepare a preliminary evaluation summary report, including questions to be clarified during the hearings.
 - **Hearings:** Applicants may be invited to hearings with the evaluators to clarify the questions of the panel. The applicants will receive the relevant questions two weeks in advance of the hearings. Hearings shall consist of oral presentations (approx. 60 minutes) by the applicants of their application and of their responses to the questions of the evaluation panel. The panel may ask further clarifications on the presentation and original questions. The presentation and responses shall not lead to an alteration of the application submitted but shall aim to ensure the proper understanding of the application. The hearing will last a maximum of 120 minutes. A maximum of five representatives from the applicant can participate in the hearing. Members of the EuroHPC JU Governing Board can participate as observers during the hearings. Hearings will be physically held in principle in Luxembourg (unless otherwise specified).
 - **Finalisation of Panel review:** After the hearings, the review panel will reconvene to establish its final ranking list and scores according to the evaluation criteria provided in section 9. Only applications above threshold will be ranked by the review panel according to the evaluation criteria total score.

3. GUIDING PRINCIPLES OF THE EVALUATION PROCESS

The main guiding principles that the EuroHPC JU will apply when evaluating the applications received in the Calls are as follows:

- ***Fairness & impartiality:*** the Evaluators must treat the Applications equally and evaluate them impartially on their merits, irrespective of their origin or the identity of the applicants
- ***Confidentiality:*** according to their Contract, the Evaluators must treat the Applications and any related information, data, and documents in full confidentiality
- ***Data protection:*** Any personal data in the Applications must be processed under Regulation (EU) 2018/1725 and according to the notifications to the Data Protection Officer (DPO) (publicly accessible in the [DPO register](#))
- ***Efficiency & speed:*** evaluation, award and grant preparation should be done as quickly as possible without compromising quality or neglecting the rules.

¹ Until the date on which the EuroHPC JU has its own operational capacity in accordance with Article 29 of the Regulation

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- **Ethics & security:** the evaluation will be carried out in compliance with fundamental ethical principles and the applicable rules on [ethics and security](#)²
- **Transparency:** funding decisions must be based on clearly described rules and procedures, and applicants should receive adequate feedback on the outcome of the evaluation

4. ROLES

The Executive Director of the EuroHPC JU is the responsible authorising officer (RAO) for any matter related to the evaluation process (before, during or after an evaluation) and its underlying decision making process.

The RAO assigns the staff of the EuroHPC JU and the roles they will have in the evaluation process. These are respectively as follows:

- The **call coordinator** (CC): he/she plans and organises the application submission and evaluation process and acts as a contact point for practical questions
- The **call officers** (CO): they manage a part of the submission and evaluation process, together with the call coordinator
- The **evaluation responsible officer(s)** (RO). This is the normally the RAO – he/she gives directions on how to deal with any sensitive issues that may arise in the evaluation process (e.g. possible conflicts of interest, etc.)
- The **moderators**: they chair the consensus meetings and help the participating Evaluators come to a conclusion
- The **quality controllers**: They can be external experts or staff members of the EuroHPC JU. They are not involved in the consensus meetings, but are responsible for checking the evaluation summary reports of each Application for assuring clarity and coherence of the texts.
- Applications are opened by an **opening committee** appointed by the RAO. It must be made up of at least two persons representing at least two organisational entities with no hierarchical link between them.

There are also a number of other roles or functions for evaluation that are performed by external experts:

- The **evaluators** who assess applications (individually, as members of a consensus group and/or as members of the panel).
- The **rapporteurs** who draft consensus or panel reports
 - For the consensus group: an expert designated either by the moderator or the moderator him/herself. (If it is an expert, s/he does not necessarily have to be a member of the consensus group).
 - For the panel review: one of the experts appointed by the panel chair or the chair him/herself.
- **Observer(s)**
- If relevant, ethics experts and qualified staff (for the ethics review).

During the transition period of the EuroHPC JU setup, the EU Staff (DG CNECT.C2) will be responsible of the implementation of the evaluation.

² <https://www.eurisc.eu/BasicTexts/2013-01-D-9-en-1.pdf>

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The next two subsections describe the selection of the Evaluators and Observers

4.1. Evaluators

Well before the evaluation starts, the CC/CO compose a list of potential external experts whose knowledge, skills and experience are relevant for the Call. The list of experts is drawn-up on the basis of the following criteria:

- Experts have a high level of skills, experience and knowledge in the relevant area, including procurement, deployment and operations of Supercomputers.
- If this condition is satisfied, the list of evaluators should have a balanced composition in terms of various skills, experience and knowledge, geographical diversity and gender. With respect to gender, the policy of the EuroHPC JU is one of equal opportunities for women and men.
- A private-public sector balance is assured, if appropriate.

These experts must be selected in accordance with the principles of equal treatment and absence of any conflicts of interest.

Based on this list the RAO appoints:

- The independent external experts as evaluators
- (one or more) independent external experts that would act as observer(s) for the call

The CC/CO assign the Evaluators to the applications. For the needs of the Calls, typically five Evaluators shall be assigned per Application.

4.2. Observers

The evaluation process may be accompanied by one or more observer(s) that are also independent outside experts. The RAO appoints the observer(s). The role of the observers is to ensure a high degree of transparency, by:

- checking the functioning and execution of the overall evaluation process
- verifying compliance with the evaluation procedures
- advising on the conduct and fairness of the evaluation sessions, how the experts apply the evaluation criteria, and how the procedures could be improved
- liaising with the staff members of the EuroHPC JU involved in the evaluation sessions and
- if necessary, suggesting possible corrections that could be put into practice immediately (or for future evaluations).

The observers cannot intervene during the evaluations, under any circumstance. If they would like to provide urgent feedback, this must be done directly to the CC/CO after the consensus meetings. The observer(s) sets out their findings (and suggestions on corrections) in the observer report(s). At the end of the evaluation, the observer(s) must prepare and sign their observer report and the CC/CO must archive them in ARES. If there are several observers, they must submit a joint report.

The RAO may publish the observer report(s) or a summary – if the personal data of the observers have been deleted. The observer report will be provided to the JU Governing Board.

5. CONFLICT OF INTEREST

The Evaluators and Observers must sign a confidentiality agreement and a [declaration that no conflict of interests](#) exists at the time of their appointment and that they undertake to immediately inform the EuroHPC JU if one should arise in the course of their duties. Annex 1 “Declaration of absence of conflict of interests and of confidentiality” will be used as a template for both.

The precise consequences/measures to take vary, depending on the situation:

1. Exclusion from the evaluation for a specific Application, if s/he:

- is a director, trustee or partner or is in any way involved in the management of an applicant (or linked third party or third parties) involved in the Application
- is employed or contracted by one of the applicants (or linked third party, named subcontractor or other third parties involved in the application).

In this case, the Evaluator must normally be excluded from the entire evaluation process of the Application concerned. S/he may not do the individual evaluation of the Application, nor take part in the consensus meeting, panel review or hearings when the Application is being discussed.

Such an Evaluator may, however, exceptionally be invited to take part in the panel review meeting, if all of the following apply:

- the Evaluator works in a different department/laboratory/institute from the one where the work is to be carried out
- the departments/laboratories/institutes within the organisation concerned operate with a high degree of autonomy
- his/her participation can be justified by the requirement to appoint the best available experts and by the limited size of the pool of qualified experts (and this is documented).

The other Evaluators must be informed of the situation.

2. Exclusion from the evaluation for an Application AND for all Applications competing for the same call budget-split, if s/he:

- was involved in the preparation of an application submitted to the same topic/other topic within the same call budget-split
- would benefit if an Application submitted to the same topic/other topic within the same call budget-split is accepted or rejected
- has a close family ties (spouse, domestic or non-domestic partner, child, sibling, parent, etc.) or other close personal relationship with a person (including linked third parties or third parties) involved in the preparation of a application submitted to the same topic/other topic within the same call budget-split or with a person which would benefit if such application is accepted or rejected.

In this case, the Evaluator must be excluded from the entire evaluation process (of the application concerned and competing applications).

3. Exclusion from the Evaluation for the entire call, if s/he:

- is a national contact point (NCP) or is working for the Enterprise Europe Network (EEN)
- is a member of the EuroHPC JU Governing Board.

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4. Potential exclusion from the Evaluation (for Application, Application and competing Applications or entire call), if s/he:

- was employed by one of the applicants (including linked third parties or third parties involved in the application) in the last 3 years
- is involved in a contract or grant agreement or membership of management structures (e.g. member of management or advisory board etc.) or professional collaboration with an applicant, or has been so in the last 3 years
- is in any other situation that could cast doubt on his/her ability to participate in the evaluation of the Application impartially, or that could reasonably appear to do so in the eyes of an external third party.

In this case, the RO must decide on whether there is a conflict of interest (on the basis of objective circumstances, available information and related risks) and on the scope of the exclusion (i.e. application, application and competing applications or entire call).

The conflict of interest rules fully apply to all evaluators.

If a conflict of interest is found only later on in the evaluation procedure, the Evaluator must stop evaluating the application and may not take part in any panel review where the Application is discussed. As a rule, another Evaluator will be assigned to this application to prepare an individual evaluation that replaces the one of the excluded Evaluator. The consensus group in which s/he has participated must be declared null and the consensus meeting has to be reconvened and the Application(s) concerned re-evaluated.

The relevant provisions read as follows:

- An Staff member of the EuroHPC JU shall not, in the performance of his/her duties, deal with a matter in which, directly or indirectly, (s)he has any personal interest such as to impair his independence, and, in particular, family and financial interests.
- Any staff member of the EuroHPC JU to whom it falls, in the performance of his/her duties, to deal with a matter referred to above shall immediately inform the RAO. The RAO shall take any appropriate measure, and may in particular relieve the official from responsibility in this matter.

6. BRIEFING

The CC is responsible for organising a thorough briefing of the Evaluators and Observers — before and possibly during — each evaluation session.

The briefing should cover in particular:

- the key features of the call
- the conditions that should be applied to evaluate the applications, i.e.:
 - content of the topics under consideration
 - the evaluation processes and procedures
 - the award criteria to be applied
 - instructions to disregard excess pages (if these have not already been removed)
 - instructions to give the benefit of the doubt to the proposer if the application contains contradictory information

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- instructions to evaluate applications with ineligible participants without that participant (i.e. disregarding its activities and estimated budget)
- the need to evaluate applications as they were submitted (and NOT their potential if changes were to be made) and that this implies:
 - not to make recommendations to improve applications
 - to reflect shortcomings in lower scores (especially that applications with a significantly inflated or cost-inefficient budget should NOT pass the relevant threshold)
- the conditions that should be applied to assess the additional questions on which the experts are asked for advice
- the terms of the experts contract (especially, confidentiality, impartiality, conflict of interest, tasks, approval of reports, and consequences in case of non-compliance).

The Evaluators will be reminded also:

- that they have to provide comments to accompany each of their scores and that these comments must be consistent with the scores awarded
- to immediately signal to the EuroHPC JU any other issues related to the application (e.g. other reasons for ineligibility, plagiarism or other research misconducts, etc.)
- to immediately signal any conflict of interest s/he became aware of during the evaluation of the application

The Observers shall be given the appropriate background material (including work programme excerpts, guidance documents, etc.)

7. OPENING OF THE APPLICATIONS

After the call deadline, the opening of the Applications will take place in Luxembourg. During the opening, the opening committee must ensure:

- the Applications were opened after the submission deadline;
- their confidentiality and integrity were safeguarded until they were opened;
- applicants fulfilled the formal submission conditions.

The RAO designates one or more persons participating in the opening to be responsible for formally verifying the compliance of the Applications with the transmission and delivery rules laid down in the Calls. The composition of any committee that may be appointed to open the Applications is at the discretion of the RAO.

A record, duly signed and dated by the RAO must be drawn up for the opening of the Applications and the compilation of the list of compliant and non-compliant Applications with their respective originators, which should naturally include their date of submission. The report must be registered in ARES.

The references of the Applications and a link to the archives must be clearly indicated in the record. The electronic version of the Applications should be registered in ARES.

Rejections of Applications infringing the submission rules will be communicated to the interested parties as soon as possible, so that they need not harbour vain expectations throughout the evaluation stage. Evidence of the non-compliance of these Applications must be retained for the purposes of subsequent justification.

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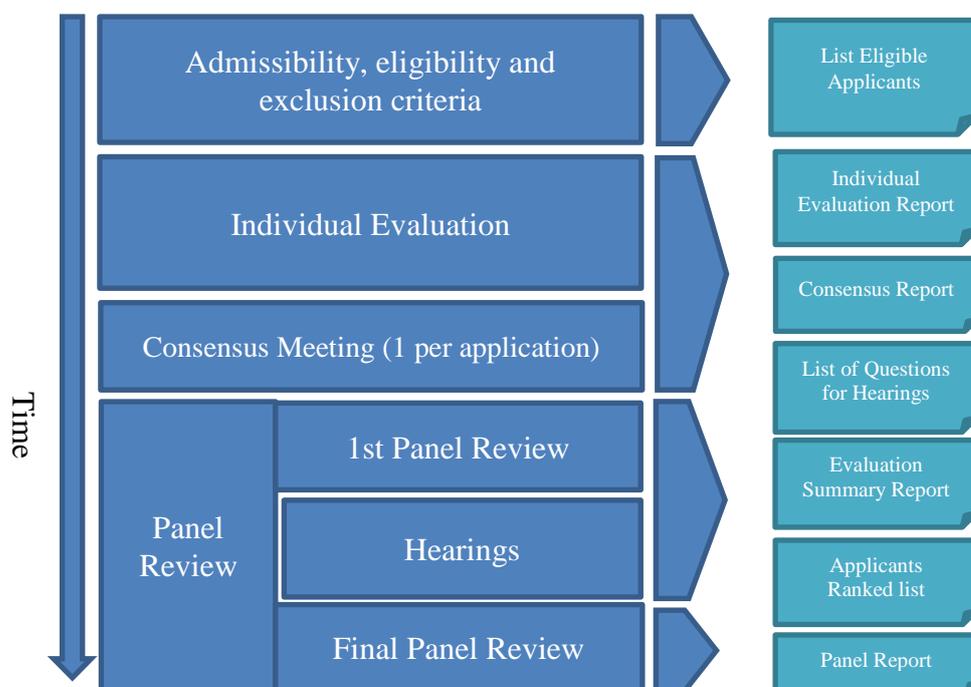
Even if the Calls remind applicants of the need to complete their Application in full, to sign it and to attach all of the requisite supporting documents, an Application may not be rejected on purely formal grounds, such as the absence of a signature or the submission of fewer copies than the number requested.

For more information related to the possible problems during the opening of the Applications, please refer to Appendix 2 “Recurring problems during the opening of the applications”.

8. THE EVALUATION PROCESS IN DETAIL

This section provides more detail on the different phases of the evaluation process presented in Section 2 above. The evaluation process has three main parts:

- Admissibility, eligibility and exclusion criteria
- Individual evaluation and Consensus meetings
- Hearings and Panel Review



Before starting the evaluation process, the committee and experts are briefed on:

- the evaluation processes and procedures (including selection and award criteria)
- the content of the topics under consideration the terms of their contract (e.g. confidentiality, impartiality, conflicts of interest)
- the need to evaluate applications as they were submitted, rather than their potential should certain changes be made.

8.1. Phase 1 — Admissibility, eligibility and exclusion criteria

Form to fill	One form “Admissibility and Eligibility Form_en_EuroHPC_HE” per applicant
Output	First part of Report “ evaluation-report-CEI EuroHPC en ” including List of Eligible Applicants
Performed by:	Opening committee for Admissibility Evaluation committee for Eligibility and Exclusion criteria

8.1.1. *Verification of admissibility requirements*

After the call deadline, the CC/CO must access the Applications to perform the admissibility and eligibility checks and fill out the admissibility & eligibility form.

The first step is to verify all the Applications for their compliance with the pre-announced admissibility requirements of the Call. The assessment with regards to the admissibility criteria implies a YES or NO.

These checks aim to filter out the obvious cases of inadmissible or ineligible applications that can be immediately be rejected (to avoid spending evaluation resources).

The admissibility conditions are set out in the call text. Applications must be written in a legible font and respect the specifications on page limits and formatting set out in the template. Applications exceeding the page limits are normally admissible, but the excess pages may be made invisible and therefore disregarded for the evaluation.

The following are generally inadmissible:

- applications submitted after the call deadline
- applications which are not readable, not accessible or not printable
- incomplete applications, if essential elements are missing (e.g. application description, supporting documents)

8.1.2. *Verification of eligibility criteria*

The eligibility conditions are set out in the call text. All criteria in this section must be passed for the applicant be considered to the next phase. The check of the eligibility of applicants implies also a YES or NO. The applicant must have provided the documents required in this section.

When checking eligibility, the following should be considered:

- the call text may restrict the participation, if specifically justified (e.g. security reasons, call focusing on specific geographic area)
- international organisations (IOs) are normally automatically eligible
- entities from countries which are not eligible normally cannot participate
- eligibility rules apply to all participants (applicants and linked third parties).
- Inadmissible/ineligible applications

Inadmissible/ineligible applications should be flagged in the report and rejected (application rejection letter and rejection decision). This may be done immediately or just after evaluation (to send all rejection letters at the same time).

Ineligible participants (applicants or linked third parties) do not necessarily lead to application rejection. If the application remains in principle eligible, the evaluation may continue disregarding the ineligible participant.

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Duplicate applications:

If two very similar applications are submitted by the same applicants for the same call, the RAO may ask the coordinator(s) to withdraw one or both of them.

Withdrawn applications:

Do NOT need to be rejected; they are considered not submitted. No further communication is necessary.

8.1.3. *Verification of exclusion criteria*

The assessment with regards to the exclusion criteria also implies a YES or NO test. The applicant may not be in any situation giving rise to exclusion. The test applies to any applicant in the award procedure no matter whether it is a public body or not.

When verifying the Application, it is required to consult the early detection and exclusion system (EDES) as part of checking exclusion criteria, before taking an award decision. The check in the EDES must cover the future beneficiaries and affiliated entities.

8.2. Phase 2 – Individual Evaluation and Consensus Meeting

Only for the Applications that passed the previous phase, the Evaluators shall carry out the individual evaluation on the basis of the evaluation criteria that are set out in the Calls.

8.2.1. *Individual Evaluation*

Evaluators must indicate if the application falls entirely outside the scope of the part of the call which they are evaluating or involves security issues that will need further scrutiny.

The Evaluators score the applications for each criterion as defined in section 8 of the Call texts and further reported in Section 9 below.

Each Evaluator must examine each application individually, and evaluate it by setting out comments and scores for each evaluation criterion. The scores must be consistent with the comments. The evaluation must be made on the Application as it was submitted (NOT on its potential if certain improvements were to be made).

During the evaluation, the Evaluators may be also asked to give their opinion on additional questions (not directly related to the quality of the application, but where their expertise may help the RAO for his/her award/rejection decision).

Evaluators draft and submit their individual evaluation report (IER). Each Evaluator carries out an individual evaluation and prepares an ‘individual evaluation report (IER)’ with comments and scores for each criterion. They must use the form IER_en_EuroHPC_HE_PE for the Precursors to Exascale Call and IER_en_EuroHPC_HE_PT for the Petascale Call to provide the score for each applicant. One IER per Evaluator and per application.

By filling and submitting the report, the Evaluator also confirms that s/he has no conflict of interest for the evaluation of that particular application.

After submission, an IER can normally NO longer be changed. If duly justified, the Moderator may allow for changes by the expert.

After submission of the reports, the CC/CO must check if the Application is considered to be out of scope by the experts. If considered out of scope by all Evaluators, it is passed

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on to the consensus group ONLY if the CC/CO considers that a further consideration by experts is necessary.

8.2.2. *Consensus meetings*

The individual Evaluators then form a ‘consensus group’ and meet to come to a common view and agree on comments and scores, recorded in a ‘consensus report’. A consensus meeting will be held for each application. The consensus group consists of the Evaluators who carried out the individual evaluations for a given application. The group is assisted by a Moderator and a consensus meeting rapporteur. The consensus meeting duration will be established by the CC.

The rapporteur may pre-draft the consensus report based on the IERs. For the consensus report, the rapporteur must use the Consensus report template for Pre-exa CR_en_EuroHPC_HE_PE and the Consensus Report template for Petascale CR_en_EuroHPC_HE_PT. These reports must be signed by all the participants of a consensus meeting after formal quality check by CC.

The Moderator will chair the consensus meeting, who shall seek consensus and ensure that Applications are evaluated fairly, in line with the relevant criteria. If the consensus group cannot reach a common view, the consensus report will set out both the majority view and the dissenting views.

The consensus group must reach, for each application, an agreement on the evaluation (i.e. consensus comments for each of the award criteria and appropriate scores reflecting the comments)

For each award criterion, the comments and scores must be clear, sufficiently detailed, consistent and suitable for feedback to the applicants (i.e. suitable for inclusion into the evaluation summary report (ESR)).

Any shortcomings (except minor ones) must be reflected in lower scores. Weaknesses (i.e. significant shortcomings that prevent the application from reaching its objective or imply a serious over-estimation of resources) must lead to a below-threshold score for the criterion concerned (if relevant). The consensus group may NOT make any recommendations. The comments must explain the shortcomings that justify lower scores.

As part of the discussions during the consensus meeting, the consensus group may prepare for each applicant a list of questions/clarifications for the hearing that may be reviewed by the RAO, before these are sent to the applicants in order to prepare for the hearings.

In some cases, the CC may ask additional Evaluators to examine an Application, to establish whether a clear majority view exists.

The consensus report (CR) is prepared by the consensus group rapporteur and stored in ARES. One CR per application.

The draft report may be reviewed by the Moderator, who has to ensure that the award criteria have been correctly applied. (If necessary, the Moderator may refer the draft report back to the Evaluators.) In addition, the report may be checked by the quality controller for clarity and coherence and compliance with the quality standards. If necessary, the quality controller may request or propose changes.

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The Evaluators must accept (or reject) the consensus report - within a certain deadline defined by the CC.

8.2.3. 1st Panel Review

The RAO sets up the review panel. It may be composed of Evaluators involved in the consensus meetings, new Evaluators or a mixture of the two. Persons with a (potential) conflict of interest may NOT participate in the panel meeting.

The Executive Director of the EuroHPC JU chairs the review panel.

At the beginning of the review panel meeting (and before receiving any information), the participants must sign the panel review meeting attendance list. The attendance list will be attached to the panel review meeting minutes. If there are no panel meeting minutes, the attendance list must be filed in ARES together with the panel review report.

Before the review panel meeting is convened, a cross-reading of the Applications may be organised in order to:

- Ensure a first objective understanding of all proposals that are above threshold that will be invited at hearings,
- Discuss any other Application with minority views in the consensus phase, etc.

Such cross-reading should be ensured by at least 2 members of the review panel, who did not look at them before, i.e. during the individual evaluation or consensus phase. All panel members will have access to ALL ESRs and Applications. It is mandatory to check the conflict of interest for the cross-readers.

The review panel prepares the hearings and reviews the scores and comments for all the Applications to check for consistency across the evaluations.

The review panel prepares a preliminary evaluation summary report, and reviews the questions to be clarified during the hearings.

More specifically, the review panel examines all the Applications in order to reach a first agreement on the evaluation for each application, by comparing it to all other applications ('benchmarking').

For each application, the review panel may examine the draft evaluation summary report (ESR) and:

- check the consistency of the comments and scores given at the consensus phase
- resolve cases where there were minority views recorded in the consensus report
- where necessary, propose a new set of scores or revision of comments in the ESR
- and, wherever applicable, review the questions to be clarified during the hearings.

Changes in the evaluation by the review panel (i.e. new or altered comments or scores) must follow the same rules on the evaluation as those applied at the consensus meetings (e.g. no recommendations, evaluation on the basis of the application as submitted, all shortcomings reflected in lower scores, comments explaining lower scores, etc.).

At the end of the first review panel meeting:

- For all Applications below threshold, their evaluation summary reports are finalised.
- For all Applications to be invited to hearings, preliminary evaluation summary reports are prepared together with a list of the questions to be clarified during the hearings.

8.3. Phase 3 –Hearings and Final Panel Review

8.3.1. *Hearings*

The EuroHPC JU will organise hearings as part of the panel review, to:

- clarify the Applications and help the panel establish their final assessment and scores or
- improve the experts' understanding of the applications.

All the applications that have passed the individual thresholds must be invited (even if they fell short of the overall threshold). Applicants will be invited to hearings to clarify the questions of the panel that were prepared in the previous phase. The invitation will be done using the [hearing invitation letter](#) based on the [H2020 panel hearing invitation letter](#). The applicants will receive the relevant questions two weeks in advance of the hearings.

A maximum of five representatives from the applicant can participate in the hearing.

The Evaluators from the panel will be attending the hearings, together with the CC and the observers.

Hearings shall consist of oral presentations (approx. 60 minutes) by the applicants of their Application and of their responses to the questions of the panel. The panel may ask further clarifications on the presentation and original questions. The presentation and responses shall not lead to an alteration of the Application submitted but shall aim to ensure the proper understanding of the application. The hearing will last a maximum of 120 minutes.

Hearings will be physically held in Luxembourg (unless otherwise specified).

Decisive clarifications obtained during the hearing (and other important observations) should be recorded by the panel/hearing committee in the panel hearing minutes and in the respective draft ESR.

Applicants may only provide explanations and clarifications in response to questions submitted to them in advance. The panel may invite additional Evaluators to clarify particular issues requiring specific expertise. These experts may not take position on the application as a whole.

8.3.2. *Final Panel Review*

After the hearings, the review panel will reconvene to establish the final ranking list and scores according to the evaluation criteria.

At the beginning of the final review panel meeting (and before receiving any information), the participants must sign the panel meeting attendance list. The attendance list will be attached to the panel meeting minutes. If there are no panel meeting minutes, the attendance list must be filed in ARES together with the panel report.

The review panel will consider all Applications of the hearings one by one and drafts the final ESR texts taking into account the clarifications that Applicants brought during the hearings.

Changes in the evaluation by the panel (i.e. new or altered comments or scores based on the hearings) must follow the rules on the evaluation by the consensus group (e.g. no

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recommendations, evaluation on the basis of the application as submitted, all shortcomings reflected in lower scores, comments explaining lower scores, etc.).

In addition, after the revision of the scores (if any):

- The panel ranks above-threshold applications and establishes a priority order for applications with the same score (in the panel ranked list).

If necessary, a priority order for applications with the same score will be determined in the ranked list, according to the following approach:

Applications with the same score for Precursors to Exascale supercomputers: Applications with the same total score will be prioritised according to the scores they have received for the evaluation selection criterion "compliance with the general system specifications defined in the call for expression of interest". When these scores are equal, priority will be based on scores for the selection evaluation criterion "experience of the hosting entity in installing and operating similar systems", then "total cost of ownership of the supercomputer" and then "quality of the hosting's facility's physical and IT infrastructure". These factors will be documented in the Review Panel Report.

Applications with the same score for Petascale supercomputers: Applications with the same total score will be prioritised according to the scores they have received for the evaluation criterion "compliance with the general system specifications defined in the call for expression of interest". When these scores are equal, priority will be based on scores for the evaluation criterion "total cost of ownership of the supercomputer", then "experience of the hosting entity in installing and operating similar systems", and then "quality of the hosting's facility's physical and IT infrastructure". These factors will be documented in the Review Panel Report.

At the end of the panel review meeting, the Evaluators adopt the review panel meeting minutes (including the panel ranked list, the list of issues and panel meeting attendance list), signed by at least a majority of the Evaluators present at the meeting. There is NO need for review panel meeting minutes, if the review panel report is drafted already during the review panel meeting and signed by a majority of the Evaluators present.

The final ESRs must then be checked by a quality controller for clarity and coherence and compliance with the quality standards. If necessary, the quality controller may request or propose changes.

8.3.2.1. Review Panel Report

The review panel report consists of:

- a narrative part (describing the evaluation procedure and including a summary of other recommendations by the panel)
- and - as annexes -:
 - the panel ranked list, containing the Applications that passed all thresholds, along with a final score and the review panel's recommendations (where necessary) for priority order in case of equal scores
 - the list of below-threshold applications (i.e. applications that failed to achieve one or more threshold scores, with a summary explanation for each application for which the ranking status was modified by the panel)
 - the evaluation summary reports (ESRs)
 - consolidated information on the additional questions, i.e.: the signed panel meeting minutes (if any).

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Record should also be made of:

- applications where the panel had to vote to determine the final score, with explanations and minority views
- applications having the same score, where the review panel was unable to agree a priority order, having first applied the procedure specified in the work programme, with explanations.
- the hearings held, if any.

Moreover, the review panel report should include – as specific annexes for internal use only – a report on conflicts of interest.

After the review panel report is validated, the evaluation summary reports (ESRs) or panel report should NO longer be changed, except if necessary to ensure coherence and readability or to remove factual errors or inappropriate comments. Any such changes may not affect the evaluation results. The scores must NOT be changed.

Applicants will receive a copy of their evaluation summary report, when they are informed of the outcome of the evaluation.

8.4. Outcome of the evaluation: Ranked list and Evaluation Report

The outcome of the evaluation is a final ranking list per Call, together with the Evaluation Summary Reports. On the basis of the panel ranked list(s), available budget and specific topic conditions in the Calls on the number of applications that can be funded (if any), the CC/CO prepare the call ranked list(s) ('JU ranked list') and the call evaluation reports (CER). One call evaluation report per call.

The Call ranked list(s) consist(s) of:

- the main list (i.e. applications proposed for funding, with the name of the application, the applicants and proposed maximum funding amount)
- a reserve list (if necessary to allow for eventualities, such as the withdrawal of applications, rejection of applications during grant preparation or availability of additional budget from other sources)
- a list of applications that cannot be funded because below-available budget (i.e. applications that passed the thresholds but are ranked too low to receive funding).

The call ranked list(s) optimise the budget by taking into account that funding would be required in the event of successful redress procedures. The call ranked list(s) does not include ineligible applications.

The CER consists of:

- a narrative part describing the evaluation procedure
- and — as annexes — :
 - the call ranked list(s)
 - the list(s) of below-threshold applications
 - list(s) of inadmissible or ineligible applications
 - statistics on the evaluation and on the call
 - the topic reports (if any)
 - the finalised ESRs
 - the observer report(s).

Re-evaluation: Exceptionally, if the RAO believes that the evaluation procedure was flawed (e.g. Evaluators misapplied the award criteria; one Evaluator unduly influenced

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the other experts in an inappropriate and biased way), s/he may decide that all applications that were evaluated by that panel have to be re-evaluated.

Final decision making: The Executive Director of the EuroHPC JU will submit the final ranking list, together with the Evaluation Summary Reports and the CER, to the Governing board of the EuroHPC JU with a proposal for selection of the Hosting Entities for their approval.

Deviation from the panel ranked list for policy reasons: The Executive Director of the EuroHPC JU may propose to the Governing Board to deviate from the review panel ranked list. Every deviation shall be accompanied by appropriate justifications: For example, for better compliance with the EuroHPC policies, for better reaching the strategic objectives of the EuroHPC JU, for achieving an overall balance of the Applications to be selected, etc.

The Governing Board will make the final selection of the Hosting Entities in accordance with Article 7(4) of the Statutes of the Regulation and will produce the definitive ranking list per Call.

If — on the basis of this ranking and the available budget — the applicant's Application is on the main list, the EuroHPC JU will invite the applicant to the next stages for the preparation of the acquisition of the precursor to exascale or the petscale supercomputer. This is not a commitment that the EuroHPC JU will fund the project.

The applicant will normally receive this letter within 2 months of the call deadline.

If the Application is put on a reserve list, the EuroHPC JU will inform the applicant Hosting Entity and let it know of any subsequent change.

If the Application has not been retained, the EuroHPC JU will inform the coordinator (via an 'application rejection letter'), together with the reasons why and how to appeal.

If the Application is retained, but the applicant may not participate (e.g. because the applicant or consortium is found to have insufficient funds or operational capacity or to be ineligible), the EuroHPC JU will inform the coordinator (via an 'applicant rejection letter').

The individual evaluation report that have served as the basis for the completed evaluation record as well as the minutes of the consensus meetings should be archived in order to ensure that the evaluation process is retraceable and that the necessary reference materials are available in the event of an audit or dispute.

It is also important to point out that the purpose of this record is to compile the ranking lists of selected and rejected applications, but the final decision is the sole prerogative first of the RAO, and later of the Governing Board of the JU, who may always deviate, for duly substantiated reasons, from the application made by the committee.

9. EVALUATION CRITERIA

The evaluation criteria, sub-criteria, scores and weighting are described in the Evaluation criteria section of the Call text. The aspects to be considered in each evaluation criterion are described as sub-criteria.

9.1. Evaluation criteria for the call on Precursors to Exascale Supercomputers

Eligible applications will be evaluated according to the following evaluation criteria (based on the list of criteria in Article 8(5) of the Regulation):

1. Compliance with the general system specifications defined in the call for expression of interest; (0-20 points)

Applicants must describe how the following general system specifications will be met, for both the EuroHPC supercomputer and the site.

The hosting entity will host a supercomputer with the following requirements:

- A capability computing system that is a precursor of exascale computing, with an aggregated performance level capable of executing at least 150 Petaflops (sustained performance measured using linpack benchmark)
- Covering the needs (including substantial performance increase) of a wide range of applications, and in particular of key/grand challenge applications that demonstrably require the capability usage of the supercomputer, i.e. using simultaneously a large part of the resources of the system.

The hosting site should comply with at least the following requirements:

- Power capacity and power quality for hosting a system in the range of 10 to 15 MW total consumption for the pre-exascale supercomputers
- UPS power available to cover the critical systems including storage and access to data of the JU system..
- Adequate capacity of air or liquid cooling for hosting the JU system
- At least 700 m² of contiguous floor space available for hosting the EuroHPC supercomputer and auxiliary systems
- Raised floor able to bear at least 2200 kg/m² distributed load
- 100 Gbit/s connectivity towards the rest of the GEANT Network (link capacity)
- Hosting physical security
- Hosting fire mitigation equipment/procedures
- Hosting IT access security
- Ability to perform at least a Level 1 measurement quality for a Top500 submission
- On call service support teams for IT issues
- Dedicated on-call service team for facilities issues
- Regularly measure the satisfaction of the users with the service via a user survey

Applications must include a description of the proposed supercomputer and hosting site, including features such as:

- Detailed description of the site hosting the system
- Description of the main features of the targeted supercomputer system, including e.g.:
 - Type of nodes and their configuration (e.g. accelerated, CPU, High memory, etc.)
 - Memory and storage capacities and architecture

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- Ratio of different node types within the system (accelerator/CPU, memory size, ...)
- Expected sustained performance (linpack and other performance indicators)
- What type of application domains (e.g. computational, HPDA, AI ...) and specific applications (e.g. weather forecasting, climate change, new materials, drugs design, ...) will the system be optimised for? What are the expected performance increases for the targeted applications?
- Acceptance tests and benchmarks to be used for the acceptance of the EuroHPC supercomputer
- Other related software/services (containers, virtualisation, support of workflows, workflow management...)

2. Estimation of total cost of ownership (TCO) of the supercomputer and methodology to calculate it; (0-20 points)

The applicant should include an estimation of the cost of the supercomputer that the applicant has in mind to host and that has been described in the previous section “general system specifications”.

The estimation of the TCO will be based on an estimation of the acquisition costs of a potential system that complies with the general system specifications and on an estimation of its operating costs. The costs related to the construction of the hosting site per se (i.e., the costs related to the building infrastructure that will host the EuroHPC supercomputer, etc.) shall not be covered by the EuroHPC JU. The costs of the preparation and adaptation of the hosting site incurred by the hosting entity that can be directly accounted to the EuroHPC Supercomputer may be considered as part of the TCO.

Applicants must provide their intention with regards to the duration of the operations of the EuroHPC supercomputer in the hosting entity. This should include not only their proposal for the duration of the operations, but their preference with the ownership of the Supercomputer once the operations are finished (e.g. buy it, decommissioning it ...).

Site preparation

The hosting entity must be able to meet the baseline requirements set out herein in time for the anticipated timeline for the delivery of the machine in June 2020. The applicant must provide a plan of how and in what timeline intends to realise the construction of a new or the upgrade of an existing site, including costs of each action (indicating the ones that will be considered as in-kind contribution) and the definitive date at which the site will be ready for the installation of the EuroHPC system.

Acquisition Costs

Applicants must detail the estimation for the cost of the acquisition of the EuroHPC supercomputer. Applicants must indicate clearly what costs will be included in this category, how they will calculate them and who will pay for those.

Operating Costs

Applicants must provide an auditable methodology to calculate and to verify the operating costs of the supercomputer for the duration of the action. Applicants must

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describe the model that will be used for calculating the costs of the Operational expenditures (OPEX), detailing the cost elements included in the model and providing estimates for each cost.

The hosting entity should be in position to provide an accurate estimate and to verify the operating costs of the EuroHPC supercomputer, by ensuring, for example, the functional separation, and to the extent possible, the physical separation of the EuroHPC supercomputers and any national or regional supercomputing systems it operates. The applicants must explain the way the EuroHPC supercomputer shares its IT environment and storage.

The method should be used in the operating grant to calculate the operating costs and the amount that will be covered by Union's contribution. Applicants can use the indicative list of cost elements provided in Appendix 2 to consider in the calculation of the operating costs.

Applications must include at least the following information and/ or estimations:

- 1) Average power usage effectiveness (PUE) for the current data centre over the last 12 months.³ And, in the case that the applicant would be upgrading the site to host the EuroHPC supercomputer, what is the planned (design specification) PUE for your upgraded data centre⁴
- 2) Depreciation time for the building, technical building infrastructure and IT investments and method used for the depreciation of the assets (e.g. linear).
- 3) Average cost of IT on-call service (24/7) (internal or outsourced) over the last 12 months.
- 4) Current electricity price in EUR/kWh (all taxes included) and if available, electricity price in EUR/kWh (all taxes included) at the expected installation time of the EuroHPC supercomputer.
- 5) Number of system administrators (FTE) expected to dedicate to the running of the EuroHPC supercomputer service (including critical auxiliary services such as storage, scheduling system, etc.), including average Person Month cost.
- 6) Number of user support staff (FTE) expected to dedicate to the running of the users of the EuroHPC supercomputer and application support including average Person Month cost.
- 7) IT environment including storage (disks, tapes ...) architecture, capacities and their ability to be extended to serve a pre-exascale supercomputer.

³ The calculation of the PUE provided must be based on the method defined by ASHRAE Technical Committee 9.9 as set out in their publication "PUE: A Comprehensive Examination of the Metric".
 $PUE = \text{Total Facility Energy} / \text{IT Equipment Energy}$ (Note: JU reserves the right to check this value.)

⁴ The estimated of the PUE provided must be based on the method defined by ASHRAE Technical Committee 9.9 as set out in their publication "PUE: A Comprehensive Examination of the Metric".
 $PUE = \text{Total Facility Energy} / \text{IT Equipment Energy}$

3. Experience of the hosting entity in installing and operating similar systems; (0-20 points)

Applicants must provide information of their experience in installing and operating supercomputers and dedicated high performance storage facilities, including at least:

- 1) Previous experience with installing and operating supercomputers. Provide information in case the applicant's site has experience in hosting very early releases of new systems. If relevant, applicants must provide documentation of their experience in having installed systems in the last 5 years (especially systems that ranked in the top 50 positions of the Top500 at the time of their first listing).
- 2) In the case of installing and operating a supercomputer for a 3rd party (supercomputer is legal title of 3rd party and operated for them at agreed SLA) or operating a supercomputing service or equivalent major infrastructure for a 3rd party (3rd party pays for a service with agreed SLA, supercomputer is the legal title of the hosting site); applicants must provide a description of the service provided as well as at least one contact person from the 3rd party from whom the JU may request a reference for this service.
- 3) Description of the current organizational structure and the teams of people responsible for the supercomputer operation and management (including user support and specialist support of the HPC systems). If available, include current procedures and tools for system management, help desk project management, configuration management, training and education put in place.
- 4) Description of the current procedures adopted by the supercomputing operation and management team to monitor HPC systems. Please indicate which of these are in-house and which are 3rd party solutions; how they have been integrated and customized. List any current Quality Control certifications your organization has obtained for system management, help desk project management, configuration management, training and education.
- 5) Description of the current procedures adopted by the supercomputing operation and management team to trace and resolve issues and communicate them to users and other stakeholders. Include description of current procedures adopted by the supercomputing operation and management team to ensure that service level agreements are met.
- 6) Description of any current continuity procedures the operations team or the Network Operations Center (NOC) has in place and description of current workload management software and methodology (bonus/malus; backfill; etc.) in place.
- 7) Description of previous experience in providing supercomputer access and other related services to users from other member states or pan European environments (e.g. PRACE)

4. Quality of the hosting facility's physical and IT infrastructure, its security and its connectivity with the rest of the Union; (0-20 points)

Applicants must provide information of the hosting physical and IT infrastructure, including security and connectivity that the site can provide for the EuroHPC supercomputer.

For the site preparation, the hosting entity must be able to meet the baseline requirements set out herein in time for the anticipated timeline for the delivery of the EuroHPC supercomputer by mid-2020 and the operations by the last quarter of 2020. The applicants must provide a plan of how and in what timeline intends to realise the upgrade of the site, including the definitive date at which the site will be ready for the installation of the EuroHPC supercomputer. This may include, but is not limited to Gantt charts, contractual timelines, construction permits and work contracts status.

Applicants should include (at least) the following information related to the current and proposed capacities of the hosting facility and how to achieve them:

- 1) Description of the intended hosting entity site and facility, including cooling methods and experience on cooling systems, power measurement facilities, accessibility, possibility to accommodate visitors, courses, possible extendibility of the site (m² and KW) and description of physical security concept, including access control, CCTV, etc.
- 2) Power measurement facilities in place at infrastructure level and where (device type, location of measurement à at rack, pdu, centre) and maximum levels of energy measurement according to the EE HPC HPC Power Measurement Methodology. If available, reference to any memberships of energy efficiency interest groups or codes of conduct (e.g. EE HPC WG , EU Code of Conduct, EMAS, or other); certifications for energy efficiency and sustainability (e.g. ISO / IEC 13273).
- 3) Information about the connection to the power grid, including maximum capacity of connection to the power grid and other characteristics such as redundant connection to the power grid. Information about power grid quality (number of outages from supplier in last 48 months, starting January 1st 2015) and energy procurement method (e.g., long-term contracts, annual market based purchases, other).
- 4) Information about availability of the data centre: expressed as a minimum percentage of uptime or in maximum number of hour's downtime that the HE deem are acceptable per year. Average availability of data centre infrastructure (cooling, power, etc.) (over the last 24 months for current)⁵.
- 5) Information about connectivity towards the rest of the GEANT Network (link capacity) and the Network Operating Centre (NOC) and its reachability (e.g. 24/7).
- 6) Facility managers (in-house or outsourced) involved in ensuring the operation of the data centre, and their specialization.
- 7) Total memory and storage capacities of the centre, defining what part would be dedicated to the EuroHPC supercomputer.

5. Quality of service to the users, namely capability to comply with the service level agreement provided among the documents accompanying the selection procedure; (0-20 points)

⁵ Facility is deemed available when no facility issues are affecting the running of the supercomputing service. Availability = total hours – (scheduled + unscheduled downtime)

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The applicant should specify the benchmarks or deliverables which the applicant intends to employ to achieve the expected results and targets and how they will be used. These should include at least the SLAs in the Hosting Agreement and information related to:

- 1) Access time accounting model that will be used to control the allocation time of the supercomputer. Description of access time policy proposed and how the total number of nodes of jobs in waiting queue ready to run will be measured. Provide historic system uptake and usage for recent HPC systems.
- 2) Availability of main HPC systems over last 12 months if the system has been operational for at least 18 months. If the system has been operational for less, please provide availability numbers based on the duration for which the system has been in full production. This should include hours of scheduled maintenance and hours of unscheduled maintenance.
- 3) Availability of help-desk; number of active projects currently supported. Description of services provided by user support (e.g. 1st level, 2nd level, application support) and of policy regarding response times for level 1, 2 and 3 tickets⁶.
- 4) Overview of training course curriculum related to HPC and scientific computing and links towards user documentation pages, user tutorials and webinars⁷.
- 5) Description of how the on-call service (24/7) for the supercomputing service and infrastructure facilities are set up and work. Include, if available, results from the user satisfaction surveys for your site for the last 5 years.
- 6) Fraction of time for which the current supercomputing service (supercomputer + all necessary auxiliary services like storage, network, login nodes, etc. + main software services like scheduler, access to file systems, etc.) has been available over the last 12 months?⁸
- 7) Do you perform regular regression tests to assess the stability of performance of your current supercomputer service? If yes, please provide a description of the regression test used and the frequency at which it is run.
- 8) Does your site provide any additional services that may not be critical to running the supercomputing service but may provide an additional benefit to the end user? If yes, please provide a description of these services

Applicants must provide details on how these tasks are currently done and how they propose to achieve them for the hosting of the EuroHPC supercomputer. Applicants must indicate subcontracted action tasks (if any) and explain the reasons why (as opposed to direct implementation).

⁶ Level 1 => simple request, can be solved in 1 day; Level 2 => more complex request, requires some research, can take up to 5 working days to resolve, Level 3 => request that requires vendor response to resolve, may take longer than 5 working days

⁷ or provide electronic copies if these are not reachable online or without a user account

⁸ Available = fully up and running and reachable by the users and at least 98% of compute nodes available

9.2. How to evaluate proposals targeting the development of an optional system on an advanced experimental platform towards exascale

One of the targets of EuroHPC JU is promoting the further development of European technologies and their subsequent integration in exascale supercomputing systems and thus contributing to developing a competitive European technology supply industry.

As part of this objective, interested hosting entities may also include in their application an optional system targeting the development of an advanced experimental platform towards exascale systems. The goal of such a platform shall be to develop an exploratory supercomputing infrastructure for the development, integration, testing, and co-design of a wide range of European technologies suitable to be part of the future European exascale systems. The development, installation and operating costs of such platform should be marginal to the overall cost of the proposal.

The evaluation will be based on the three standard evaluation criteria of Horizon 2020⁹. Based on these, the Evaluators will assess during the consensus meeting of the Application whether this part of the proposal merits to receive or not financial support.

In case the hosting entity decides to include such optional part in its application, the hosting entity should include a description of such platform, the development targets (milestones) and the time plan as well as a detailed work plan and the cost breakdown for its development and operation. The potential of such platform towards exascale systems should be duly justified in the application and will be evaluated for its own merits for receiving or not financial support.

This evaluation shall not affect the overall evaluation of the mandatory part of the application. In case the hosting entity decides to include such optional system in their application and its application selected, any grant that will be established to cover the operating costs of each individual EuroHPC supercomputer, may also include a part cover up to 50% of the eligible costs for the development of the advanced experimental platform towards exascale. The maximum costs for such platform should not exceed 6% of the overall TCO of the EuroHPC supercomputer.

⁹ 1. Excellence, 2. Impact, 3. Quality of the Implementation

9.3. Evaluation Criteria for the Call on Petascale Supercomputers

The Petascale call addresses Participating States that intend to jointly procure with the EuroHPC JU a petascale supercomputer and install it either in an existing hosting entity or in a new hosting entity. In both cases, applicants must provide information on how they plan to achieve the criteria of the call and experts should evaluate it accordingly, evaluating the expertise/capacity of the team and site that is planned to be put in place. As an overarching principle, the intention is to provide a level playing field for existing or new Hosting Entities. Eligible applications for petascale supercomputers will be evaluated according to the following evaluation criteria (based on the list of criteria in Article 8(5) of the Regulation):

1. Compliance with the general system specifications defined in the call for expression of interest; (0-20 points)

Applicants must describe how the following general system specifications will be met, for both the EuroHPC supercomputer and the site.

The hosting entity will host a supercomputer with at least these requirements:

- Computing system with a performance level capable of executing more than 2 Petaflops and less than 100 Petaflops (measured using linpack Rmax benchmark)

The hosting site should ensure at least the following requirements:

- UPS power available to cover the critical systems including storage and access to data of the JU system
- Enough capacity of air or liquid cooling for hosting the JU system
- At least 150 m² of contiguous floor space available for hosting the EuroHPC supercomputer and auxiliary systems
- Raised floor able to bear at least 2200 kg/m² distributed load
- 50 Gbit/s connectivity towards the rest of the GEANT Network (link capacity)
- Hosting physical access security
- Hosting fire mitigation equipment/procedures
- Hosting IT access security
- Ability to perform at least a Level 1 measurement quality for a Top500 submission
- On call service support teams for IT issues
- Dedicated on-call service team for facilities issues
- Regularly measure the satisfaction of the users with the service via a user survey

Applications must include a description of the proposed supercomputer and hosting site, including features such as:

- Detailed description of the site hosting the system
- Description of the main features of the targeted supercomputer system, including e.g.:
 - Type of nodes and their configuration (e.g. accelerated, CPU, High memory, etc.)
 - Memory and storage capacities and architecture

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- Ratio of different node types within the system (accelerator/CPU, memory size, ...)
- Expected sustained performance (linpack and other performance indicators)
- What type of application domains (e.g. computational, HPDA, AI,...) and specific applications (e.g. weather forecasting, climate change, new materials, drugs design ...) will the system be optimised for? What are the expected performance increases for the targeted applications?
- Acceptance tests and benchmarks to be used for the acceptance of the EuroHPC supercomputer
- Other related software/services (containers, virtualisation, support of workflows, workflow management,...)

2. Estimation of total cost of ownership (TCO) of the supercomputer and methodology to calculate it; (0-20 points)

The applicant should include an estimation of the cost of the supercomputer that the applicant has in mind to host and that has been described in the previous section “general system specifications”.

The estimation of the TCO will be based on an estimation of the acquisition costs of a potential system that complies with the general system specifications. The costs related to the construction of the hosting site per se (i.e., the costs related to the building infrastructure that will host the EuroHPC supercomputer, etc.) shall not be covered by the EuroHPC JU. The costs of the preparation and adaptation of the hosting site incurred by the hosting entity that can be directly accounted to the EuroHPC Supercomputer may be considered as part of the TCO.

Site preparation

The hosting entity must be able to meet the baseline requirements set out herein in time for the anticipated timeline for the delivery of the machine before June 2020. The applicant must provide a plan of how and in what timeline intends to realise the construction of a new or the upgrade of an existing site, including costs of each action (indicating the ones that will be considered as in-kind contribution) and the definitive date at which the site will be ready for the installation of the EuroHPC system.

Acquisition Costs

Applicants must detail the estimation for the cost of the acquisition of the EuroHPC supercomputer. Applicants must indicate clearly what costs will be included in this category, how they will calculate them and who will pay for those.

Operating Costs

Applicants must provide a realistic estimation of the operating costs of the supercomputer. Applicants must provide assurance that these cost will be covered by the applicants during the whole duration of the operation of the supercomputer until the part of the ownership of the petascale supercomputer owned by the EuroHPC JU is transferred to the hosting entity after the full depreciation of the supercomputer, unless otherwise specified or agreed.

3. Experience of the hosting entity in installing and operating similar systems; (0-20 points)

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Applicants must provide information of the experience, know-how and capability of the intended team that would be in charge at the existing or new hosting entity for installing and operating supercomputers, including at least the following aspects:

- 1) Experience, know-how and capability of the applicant's team in charge at the hosting entity for installing and operating supercomputers. Applicants should provide documentation of their team's experience, know-how and capability, including but not limited to CVs, letters of support, partnership agreements, service contracts, ...
- 2) Description of the foreseen organizational structure and the foreseen teams responsible for the supercomputer operation and management (including user support and specialist support of the HPC systems). Include description of intended procedures and tools for system management, help desk project management, configuration management, training and education.
- 3) Description of the foreseen procedures to be adopted by the supercomputing operation and management team to monitor HPC systems. Please indicate which of these will be in-house and which will be 3rd party solutions; and, how they would be integrated and customized.
- 4) Description of the foreseen procedures to be adopted by the supercomputing operation and management team to trace and resolve issues and communicate them to users and other stakeholders.
- 5) Description of any foreseen continuity procedures the operations team or the Network Operations Center (NOC) intends to put in place and description of foreseen workload management software and methodology (bonus/malus; backfill; etc.).
- 6) Description of foreseen processes in providing supercomputer access and other related services to users from other member states or pan European environments (e.g. PRACE)
- 7) In the case of installing and operating a supercomputer for a 3rd party (supercomputer is legal title of 3rd party and operated for them at agreed SLA) or operating a supercomputing service or equivalent major infrastructure for a 3rd party (3rd party pays for a service with agreed SLA, supercomputer is the legal title of the hosting site); applicants must provide a description of the service provided as well as at least one contact person from the 3rd party from whom the JU may request a reference for this service.

4. Quality of the hosting facility's physical and IT infrastructure, its security and its connectivity with the rest of the Union; (0-20 points)

Applicants must provide information of the hosting physical and IT infrastructure, including security and connectivity that the site can provide for the EuroHPC supercomputer.

For the site preparation, the Hosting Entity must be able to meet the baseline requirements set out herein in time for the anticipated timeline for the delivery of the EuroHPC supercomputer by mid-2020 and the operations by the last quarter of 2020. The applicant must provide a plan of how and in what timeline intends to realise the upgrade of the site, including the definitive date at which the site will be ready for the installation of the EuroHPC supercomputer. This may include, but is not limited to Gantt charts, contractual timelines, construction permits and work contracts status.

Applicants should include (at least) the following information related to the current and proposed capacities of the hosting facility and how to achieve them:

- 1) Description of the intended Hosting Entity site and facility, including cooling methods and systems, power measurement facilities, accessibility, possibility to accommodate visitors, courses, possible extendibility of the site (m² and KW) and description of physical security concept, including access control, CCTV, etc.
- 2) Information about the connection to the power grid, including maximum capacity of connection to the power grid and other characteristics such as redundant connection to the power grid. Information about power grid quality and energy procurement method (e.g., long-term contracts, annual market based purchases, other).
- 3) Information about availability of the data centre: expressed as a minimum percentage of uptime or in maximum number of hour's downtime that the HE deem are acceptable per year. Average availability of data centre infrastructure (cooling, power, etc.) (over the last 24 months for current)¹⁰.
- 4) Power measurement facilities in place an infrastructure level and where (device type, location of measurement at rack, pdu, centre) and maximum levels of energy measurement according to the EE HPC Power Measurement Methodology. If available, reference to any memberships of energy efficiency interest groups or codes of conduct (e.g. EE HPC WG , EU Code of Conduct, EMAS, or other); certifications for energy efficiency and sustainability (e.g. ISO / IEC 13273).
- 5) Information about connectivity towards the rest of the GEANT Network (link capacity) and the Network Operating Centre (NOC) and its reachability (e.g. 24/7).
- 6) Facility managers (in-house or outsourced) involved in ensuring the operation of the data centre, and their specialization.
- 7) Total memory and storage capacities of the centre, defining what part would be dedicated to the EuroHPC supercomputer.

5. Quality of service to the users, namely capability to comply with the service level agreement provided among the documents accompanying the selection procedure; (0-20 points)

The applicant should specify the benchmarks or deliverables which the applicant intends to employ to achieve the expected results and targets and how they will be used. These should include at least the SLAs in the Hosting Agreement and information related to:

- 1) Access time accounting model that will be used to control the allocation time of the supercomputer. Description of access time policy proposed and how the total number of nodes of jobs in waiting queue ready to run will be measured.
- 2) Describe how you will ensure the availability of the main HPC systems in accordance with the requirements described in the SLA, including a

¹⁰ Facility is deemed available when no facility issues are affecting the running of the supercomputing service. Availability = total hours – (scheduled + unscheduled downtime)

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description of the foreseen availability policy. This should include information on scheduled maintenance and unscheduled maintenance.

- 3) Describe how you will ensure help-desk availability as specified in the SLA and number of projects to be supported. Description of services that will be provided by user support (e.g. 1st level, 2nd level, application support) and of policy regarding response times for level 1, 2 and 3 tickets¹¹.
- 4) Overview of proposed training course curriculum related to HPC and scientific computing and links towards user documentation pages, user tutorials and webinars¹².
- 5) Description of how the on-call service (24/7) for the supercomputing service and infrastructure facilities will be set up and works.
- 6) Describe how you will ensure the availability of the supercomputing services (supercomputer + all necessary auxiliary services like storage, network, login nodes, etc. + main software services like scheduler, access to file systems, etc.) in accordance with the requirements described in the SLA¹³
- 7) Description of proposed regression test(s) to assess the stability of performance of the supercomputer service and the frequency at which such test(s) will be performed.
- 8) Provide description of any additional services you intend to provide that may not be critical to running the supercomputing service but may be of additional benefit to the end user.

Applicants must provide details on how they propose to achieve the tasks described above for the hosting of the EuroHPC supercomputer. Applicants must indicate subcontracted action tasks (if any) and explain the reasons why (as opposed to direct implementation).

¹¹ Level 1 => simple request, can be solved in 1 day; Level 2 => more complex request, requires some research, can take up to 5 working days to resolve, Level 3 => request that requires vendor response to resolve, may take longer than 5 working days

¹² or provide electronic copies if these are not reachable online or without a user account

¹³ Available = fully up and running and reachable by the users and at least 98% of compute nodes available

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10. SCORES AND WEIGHTING

Comments and scores must be coherent and consistent with the corresponding score. Therefore, a high score combined with critical or negative comments or a low score accompanied by positive comments would be incomprehensible and rather confusing.

Half points are not accepted. The calculation of the sub-scores and total scores must be verified carefully.

For each criterion, each application will be given scores of 0 to 20, as follows:

Name	Description	Score
Poor	the application fails to address the criterion under examination as there are serious inherent weaknesses or cannot be judged due to missing information	0 – 5
Adequate	the application broadly addressed the criterion, however there are number of weaknesses	6 – 10
Good	the application addresses the criterion well, although improvements are possible	11 - 15
Excellent	the application successfully addresses all aspects of the criterion. Any shortcomings are minor and negligible	16 - 20

Points will be allocated out of a total of 100 on the basis of the above-specified weighting. A minimum threshold of 10 points for each criterion and 60 points for the total will be applied. Applications below these thresholds will be rejected. For each criterion, if appropriate, applicants must provide detailed information about the role and tasks to be carried out by each consortium member.

If the evaluator has any doubts about the scoring of applicants, the issue should be raised to the RO for further advice and/or necessary clarification requests to the lead applicant.

11. CONTACTS WITH APPLICANTS

It is possible that contacts may be established by applicants or by members of the evaluation committee at various times during the stage prior to the award decision. Whenever this happens, certain precautions must be taken. In particular, all communication must be initiated in writing, and the RAO must retain an appropriate record of the contacts (s)he has had with applicants in the course of the procedure, such as letters and e-mails exchanged with an applicant and notes recording the content of any telephone conversations.

If contacts occur during the evaluation stage, for example if applicants seek information about the progress of their applications, no information on the evaluation of individual cases must be divulged; only general procedural information, such as the indicative timetable or the arrangements for notification of applicants, may be communicated, and it is essential to take great care not to give rise to any legitimate expectations on the part of applicants.

The main interactions with applicants that are included in the Calls are:

Deadline to submit questions about the Call
Publication of the last answers to questions
Send clarification questions to applicants
Hearings from applicants on questions from panel

12. APPENDIX 1 DO’S AND DON’Ts OF EFFECTIVE CONSENSUS-MEETING

	DO's	DON'Ts
1	DO be prepared to summarise your view of what the application aims to do	DON'T come to a consensus meeting unprepared
2	DO listen to the views of others	DON'T disregard others' opinions
3	DO stay open-minded	DON'T get stuck to your individual evaluation report
4	DO be prepared to modify your original opinion and /or score	DON'T introduce material you would want to see in the application
5	DO provide examples to support your views	DON'T compare your evaluation of this application with what you have seen in another one
6	DO focus on the application in question	DON'T agree with comments that are not supported by application evidence and your knowledge of state of the art.
7	DO evaluate according to the specific sub-criteria for the Type of Action and/or Topic in question	DON'T assume proposers' intentions if the application does not provide factual evidence of them
8	DO share your opinion willingly	DON'T agree with scores that are inconsistent with the comments made
9	DO check your understanding of colleagues' opinions	DON'T score a application in comparison with others in your batch
10	DO use full marks and the full scoring range	DON'T ignore the definitions of scores across the range

13. APPENDIX 2. PROBLEMS DURING THE OPENING OF THE APPLICATIONS

When taking receipt of applications, the RAO will often be required to resolve problems relating to the confidentiality of data or the formal non-compliance, or at least the apparent non-compliance, of submission.

What rules should be followed?

Accidental opening of an application sent by post

An opened application must be rejected only if it arrives in that condition. In such a case, the integrity of the application cannot be guaranteed. If, on the other hand, the EuroHPC JU mail department opens it by mistake, that ‘incident’ must be documented by means of a note on file explaining the circumstances of the opening and indicating that the application had not been opened before it reached the competent department, thereby certifying that any consequences of the error are not imputable to the applicant. Any potential risks to the integrity of the applications must also be assessed.

Receipt of an application sent by post after the date indicated in the call deadline

The deadline for the submission of applications as indicated in the calls (Call Deadline) represents the latest date on which the applications may be either posted, in which case the postmark serves as evidence of compliance, or entrusted to a courier service, in which case the deposit slip serves as evidence, in accordance with the arrangements prescribed by the RAO. All applications arriving after the deadline but posted or deposited by the deadline are therefore admissible. Accordingly, it is advisable to observe a maximum

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period of delay after the submission deadline before launching the evaluation process to allow for the fact that some compliant applications may arrive after the closing date.

Receipt of an application submitted by 'deposit at the specified address' after the date indicated in the call deadline

Where the applicant deposits the application at the specified address, the Call deadline for the submission of applications indicated in the call for applications as Call Deadline means the latest date on which applications may be delivered by hand to the EuroHPC JU/Commission's central mail department; in this case the receipt drawn up by the departmental staff serves as evidence. All applications delivered by hand after that date are therefore inadmissible.

Application arriving beyond the end of a reasonable waiting time

In the case of an application which is sent before the expiry of the prescribed submission period but which arrives very late, it may be taken into account as long as the legal commitments have not been signed, in other words if the evaluation is still taking place. If the application arrives after the conclusion of the evaluation, it will not be considered. In this case, the only possible recourse available to a prospective beneficiary would be against the operator entrusted with the task of transporting the application.